CLAIMS:

1. A method of forming an insulating material comprising:

providing a substrate within a reaction chamber;

providing reactants comprising silicon, fluorine and ozone within the reaction chamber; and

depositing an insulating material comprising fluorine, silicon and oxygen onto the substrate from the reactants.

2. The method of claim 1 wherein the depositing occurs without a plasma being present in the reaction chamber.

3. The method of claim 1 wherein the depositing occurs with a plasma being present in the reaction chamber.

4. The method of claim 1 wherein the silicon and fluorine of the reactants are comprised within a common molecule.

5. The method of claim 1 wherein the silicon and fluorine of the reactants are comprised within a common molecule having an Si-F bond.

6. The method of claim 1 wherein the silicon and fluorine of the reactants are comprised by triethoxy fluorosilane.

7. The method of claim 1 wherein the fluorine in the insulating material is present in Si-F bonds.

8. The method of claim 1 wherein the fluorine in the insulating material is present at a concentration of from about 0.1 atomic percent to about 10 atomic percent.

9. The method of claim 1 wherein the insulating material is deposited at a rate of from about 1000 Å/minute to about 7000 Å/minute.

10. The method of claim 1 further comprising maintaining a pressure within the reaction chamber at from about 1 Torr to about 1 atmosphere during the depositing.

11. The method of claim 1 further comprising maintaining a pressure within the reaction chamber at from greater than 400 Torr to about 1 atmosphere during the depositing.

12. The method of claim 1 further comprising maintaining a temperature of the substrate at from about 400°C to about 700°C during the depositing.

13. The method of claim 1 wherein the reactants further comprise phosphorus, and wherein the insulating material comprises fluorine, silicon, oxygen and phosphorus.

14. The method of claim 1 wherein the reactants further comprise boron, and wherein the insulating material comprises fluorine, silicon, oxygen and boron.

15. The method of claim 1 wherein the reactants further comprise boron and phosphorus, and wherein the insulating material comprises fluorine, silicon, oxygen, boron and phosphorus.

16. The method of claim 1 wherein the reactants comprise a molecule that includes both Si and F, and another molecule that includes Si without F.

17. The method of claim 1 wherein the reactants comprise triethoxy fluorosilane and tetraethyl orthosilicate.

18. A method of forming a silicon oxide having Si-F bonds, comprising:

providing a substrate within a reaction chamber;

providing reactants comprising ozone and a precursor having Si-F bonds; and

depositing a silicon oxide having Si-F bonds onto the substrate from the reactants.

19. The method of claim 18 wherein the precursor having Si-F bonds is triethoxy fluorosilane.

20. The method of claim 18 wherein the depositing occurs without a plasma being present in the reaction chamber.

21. A method of forming a boron-doped silicon oxide having Si-F bonds, comprising:

providing a substrate within a reaction chamber;

providing reactants comprising triethoxy fluorosilane, a boron-containing precursor, and ozone within the reaction chamber; and

depositing a boron-doped silicon oxide having Si-F bonds onto the substrate from the reactants.

22. The method of claim 21 wherein the boron-containing precursor is triethyl borane.

23. A method of forming a phosphorus-doped silicon oxide having Si-F bonds, comprising:

providing a substrate within a reaction chamber;

providing reactants comprising triethoxy fluorosilane, a phosphorus-containing precursor, and ozone within the reaction chamber; and

depositing a phosphorus-doped silicon oxide having Si-F bonds onto the substrate from the reactants.

24. The method of claim 23 wherein the phosphorus-containing precursor is tetraethoxy phosphine.

25. A method of forming a boron and phosphorus doped silicon oxide having Si-F bonds, comprising:

providing a substrate within a reaction chamber;

providing reactants comprising triethoxy fluorosilane, a boron-containing precursor, a phosphorus-containing precursor and ozone within the reaction chamber; and

depositing a boron and phosphorus doped silicon oxide having Si-F bonds onto the substrate from the reactants, the depositing occurring without a plasma being present in the reaction chamber.

26. The method of claim 25 wherein the boron-containing precursor is triethyl borane.

27. The method of claim 25 wherein the phosphorus-containing precursor is tetraethoxy phosphine.

28. The method of claim 25 wherein the phosphorus-containing precursor is tetraethoxy phosphine and the boron-containing precursor is triethyl borane.

29. A method of forming a silicon and oxygen containing insulating material having reduced flow temperatures, comprising:

providing a substrate within a reaction chamber;

providing reactants comprising Si, F and ozone within the reaction chamber; and

depositing a first insulating material containing fluorine, silicon and oxygen onto the substrate from the reactants, the first insulating material having reduced flow temperatures as compared to another silicon and oxygen containing insulating material deposited under the same conditions but without having fluorine in the reactants.

30. The method of claim 29 wherein reactants further comprise at least one of a phosphorus-containing precursor and a boron-containing precursor, and wherein the first insulating material further comprises at least one of boron and phosphorus.

31. The method of claim 29 wherein the Si and F are comprised by triethoxy fluorosilane.

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32. A method of forming a silicon and oxygen containing insulating material having increased density, comprising:

providing a substrate within a reaction chamber;

providing reactants comprising Si, F and ozone within the reaction chamber; and

depositing a first insulating material containing fluorine, silicon and oxygen onto the substrate from the reactants, the first insulating material having increased density as compared to another silicon and oxygen containing insulating material deposited under the same conditions but without having fluorine in the reactants.

33. The method of claim 32 wherein reactants further comprise at least one of a phosphorus-containing precursor and a boron-containing precursor, and wherein the first insulating material further comprises at least one of boron and phosphorus.

34. The method of claim 32 wherein the Si-F precursor is triethoxy fluorosilane.